## DeMaria, Eva

**From:** POULSEN Mike <POULSEN.Mike@deq.state.or.us>
**Sent:** Tuesday, October 13, 2015 3:40 PM
**To:** SUTTER Jennifer
**Cc:** PETERSON Jenn L
**Subject:** RE: Topsoil import material data

I checked the dioxin calculations, and confirmed the total TEQ of 2.3 ng/kg using full DL values (not ½ RL values as indicated below). This is similar to the value we saw previously, and is typical of TEQ values that we consider background. Despite being above the import goals for some congeners, I am not concerned about dioxins.

None of the other chemicals appear to be at concentrations of concern compared with typical RBC values. They mis-state the detected SVOCs, which are actually benz[a]anthracene (a carcinogen), chrysene (also a carcinogen), and the correctly identified fluoranthene, phenanthrene, pyrene, and butylbenzylphthalate.

Jennifer is going to try to look over the data from home, and get back to you before 4 pm.

- Mike

---

**From:** SUTTER Jennifer
**Sent:** Tuesday, October 13, 2015 10:25 AM
**To:** PETERSON Jenn L; POULSEN Mike
**Subject:** FW: Topsoil import material data
**Importance:** High

This stuff looks pretty good to me, especially considering placement above 100-year flood line and covered with jute mat and planted…

---

**From:** Craig Heimbucher [mailto:cheimbucher@integral-corp.com]
**Sent:** Tuesday, October 13, 2015 10:00 AM
**To:** SUTTER Jennifer
**Cc:** Drew Gilpin (Drew.Gilpin@evrazna.com); Debbie Deetz Silva (Debbie.Deetz.Silva@evrazna.com); Mike Byers (mike.byers@creteconsulting.com); Linda Baker; Jamie Stevens (jamie.stevens@creteconsulting.com); Jane Sund
**Subject:** Topsoil import material data

Jennifer,

We are requesting DEQ concurrence on the use of topsoil mix consisting of compost from S & H Landscape Supply (part of BES stormwater mix previously tested and approved) and sandy loam from the Molalla River (referred to as Topsoil #2). The mix ratio is 1 part compost to 4 parts sandy loam and the textural analysis of the Topsoil #2 meets the physical requirements of the planting design.

A pre-mixed topsoil sample, collected as a 5-point composite, was analyzed for chemical criteria. All chemical criteria met the goals identified in the design report except selected dioxin/furan (D/F). The detected concentrations are relatively low as discussed below (all data is attached). Five noncarcinogenic PAHs (butyl benzyl phthalate, benz(a)anthracene, fluoranthene, phenanthrene and pyrene) were detected at concentrations below the design report goals and below applicable JSCS and EPA draft PRGs. In addition, one SVOC was not detected but had a detection limit slightly above the goal identified in the design report (benzoic acid: import goal was 2000 ug/kg and reporting limit was 2090 ug/kg).

Please review the attached summary tables and information below on dioxin/furan, and let us know if you concur that the Topsoil #2 is acceptable for use as the planting substrate on the riverbank berm. The topsoil will be used on the top/front of the berm and will be 2 foot thick for a total volume of up to 2,000-4,000 cy. The soil on the newly constructed berm will be covered by an erosion control blanket (coconut fiber jute mat) and planted.

In order to prevent a delay in construction, we would appreciate a response on Topsoil #2 today. We are currently analyzing a third topsoil source (Topsoil #3) and expect results next week. We will be using Topsoil #2 pending results of Topsoil #3. If Topsoil #3 is considered acceptable, we plan to switch to from using Topsoil #2 to Topsoil #3.

**Dioxin/Furan**

The Topsoil #2 D/F results that exceed import goals in the design report are all slightly less than the D/F results of the BES stormwater mix that was approved for use by DEQ.

Four D/F congeners exceeded their import goal (based on the reporting limit) as follows:

| | **SH-Composite (9/14/15) (pg/g; ng/kg)** | **Import Criteria (pg/g; ng/kg)** | **mammalian TEF (unitless)** |
|---|---|---|---|
| | RESULT | | |
| 1,2,3,4,6,7,8-Hepta CDD | **76.3** | 2.5 | 0.01 |
| 1,2,3,4,6,7,8-Hepta CDF | **6.77** | 2.5 | 0.01 |
| Octa CDD | **857** | 5 | 0.0003 |
| Octa CDF | **24.2** | 5 | 0.0003 |

TEQs calculated with 3 treatments of NDs and 3 TEFs.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.7 | 0.7 | 0.5 | 2.3 | 1.4 | 1.9 | 2.0 | 1.1 | 1.2 | ng TEQ/kg dw |
| ND=0 | | | ND=1/2RL | | | ND=RL | | | |
| mammalian 2005 | fish | bird | mammalian 2005 | fish | bird | mammalian 2005 | fish | bird | |

As the table shows, these concentrations/TEQs are below:

1. JSCS toxicity SLV for 2,3,7,8 TCDD = 9 ng/kg dw.
2. EPA draft FS RAO 1 PRG for human direct contact = 10 ng TEQ/kg dw.
3. Puget Sound DMMP open water disposal for non-dispersive sites = 4 ng TEQ/kg dw.
4. ODEQ Ecological toxicity SLVs and RBCs.

Some concentrations/TEQ exceed bioaccumulative-based screening level values and draft PRGs. However, this material will be above the 100-year flood plain (not in the water) and as noted above, measures are being taken to prevent erosion.

Please let me know if you have any questions.

Thanks,

**Craig Heimbucher, P.E.** | Senior Engineer
Integral Consulting Inc. | www.integral-corp.com

319 SW Washington St. Suite 1150 | Portland, OR 97204
Tel: 503.284.5545 ext 629 | Direct: 503.943.3629 | Cell: 503.419.7949 | Fax: 503.284.5755

HEALTH ENVIRONMENT TECHNOLOGY SUSTAINABILITY